

Naphtha

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Naphtha (/ˈnæfθə/ or /ˈnæpθə/) is a general term that has been used for over two thousand years to refer to flammable liquid hydrocarbon mixtures. Mixtures labelled naphtha have been produced from natural gas condensates, petroleum distillates, and the distillation of coal tar and peat. It is used differently in different industries and regions to refer to gross products like crude oil or refined products such as kerosene.

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Etymology

The word *naphtha* came from Latin and Greek where it derived from Persian.^[1] In Ancient Greek, it was used to refer to any sort of petroleum or pitch. The term entered Semitic languages as well in antiquity: It appears in Arabic as نَافْثَة *naft* ("petroleum"), in Syriac as ܢܦܬܐ *naftā*, and in Hebrew as נֶפֶת *neft*.

A 2nd century BCE Koine Greek religious text^[2] uses the word "naphtha" to refer to a miraculously flammable liquid. The subjects called the liquid "nephtar", meaning "purification", but note that "most people" call it naphtha (or *Nephi*).^[3]

Naphtha is the root of the word naphthalene. The second syllable of "naphtha" can also be recognised in phthalate.

It also enters the word napalm from "**n**aphthenic acid and **p**almitic acid", as the first napalm was made from a mixture of naphthenic acid with aluminium and magnesium salts of palmitic acid.

In older usage, "naphtha" simply meant crude oil, but this usage is now obsolete in English. The Ukrainian and Belarusian word нафта (lit. *nafta*), Lithuanian, Latvian and Estonian "nafta", the Russian word нефть (lit. *neft'*) and the Persian *naft* (نفت) mean "crude oil". Also, in Italy, Serbia, Bosnia and Herzegovina, Croatia, Slovenia, Bulgaria, Albania *nafta* (нафта in Cyrillic) is colloquially used to indicate diesel fuel and crude oil. In the Czech Republic and Slovakia, *nafta* was historically used for both diesel fuel and crude oil, but its use for crude oil is now obsolete^[4] and it generally indicates diesel fuel. In Bulgarian, *nafta* means diesel fuel, while *neft*, as well as *petrol*

(нефть in Cyrillic), means crude oil. *Nafta* is also used in Argentina, Paraguay and Uruguay to refer to gasoline.^[5] In Poland, the word *nafta* means kerosene.^[6] In Flemish, the word *naft* is used colloquially for gasoline.^[7]

There is a conjecture that the Greek word *naphtha* came from the Indo-Iranian god name Apam Napat, which occurs in Vedic and in Avestic;^[8] the name means "grandson of (the) waters", and the Vedas describe him as fire emerging from water.

Types

Various qualifiers have been added to the term "naphtha" by various sources in an effort to make it more specific:

One source^[9] differentiates by boiling point:

Light naphtha is the fraction boiling between 30 °C and 90 °C and consists of molecules with 5–6 carbon atoms. *Heavy naphtha* boils between 90 °C and 200 °C and consists of molecules with 6–12 carbons.

Another source^[10] differentiates *light* and *heavy* based on hydrocarbon structure:

"*Light* [is] a mixture consisting mainly of straight-chained and cyclic aliphatic hydrocarbons having from five to nine carbon atoms per molecule. *Heavy* [is] a mixture consisting mainly of straight-chained and cyclic aliphatic hydrocarbons having from seven to nine carbons per molecule."

Both of these are useful definitions, but they are in conflict with one another, so these terms are also sufficiently broad that they are not widely useful.

Health and safety considerations

The MSDSs for various vendors^{[11][12][13][14]} are also indicative of the non-specific nature of the product and reflect the considerations due for a flammable mixture of hydrocarbons: flammability, carcinogenicity, skin and airway irritation, etc.

People can be exposed to naphtha in the workplace by breathing it in, swallowing it, skin contact, and eye contact. The Occupational Safety and Health Administration (OSHA) has set the legal limit (Permissible exposure limit) for naphtha exposure in the workplace as 100 ppm (400 mg/m³) over an 8-hour workday. The National Institute for Occupational Safety and Health (NIOSH) has set a recommended exposure limit (REL) of 100 ppm (400 mg/m³) over an 8-hour workday. At levels of 1000 ppm, 10% of the lower explosive limit, naphtha is immediately dangerous to life and health.^[15]

See also

- Crude oil
- Fluid catalytic cracking
- Hydrocarbon
- Keroselene
- Naphtha launch
- Oil refinery
- Petroleum distillation
- Petroleum naphtha
- Tar

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